Enhancing Wireless Emergency Alerts (WEA) Through Device-Based Geo-Targeting

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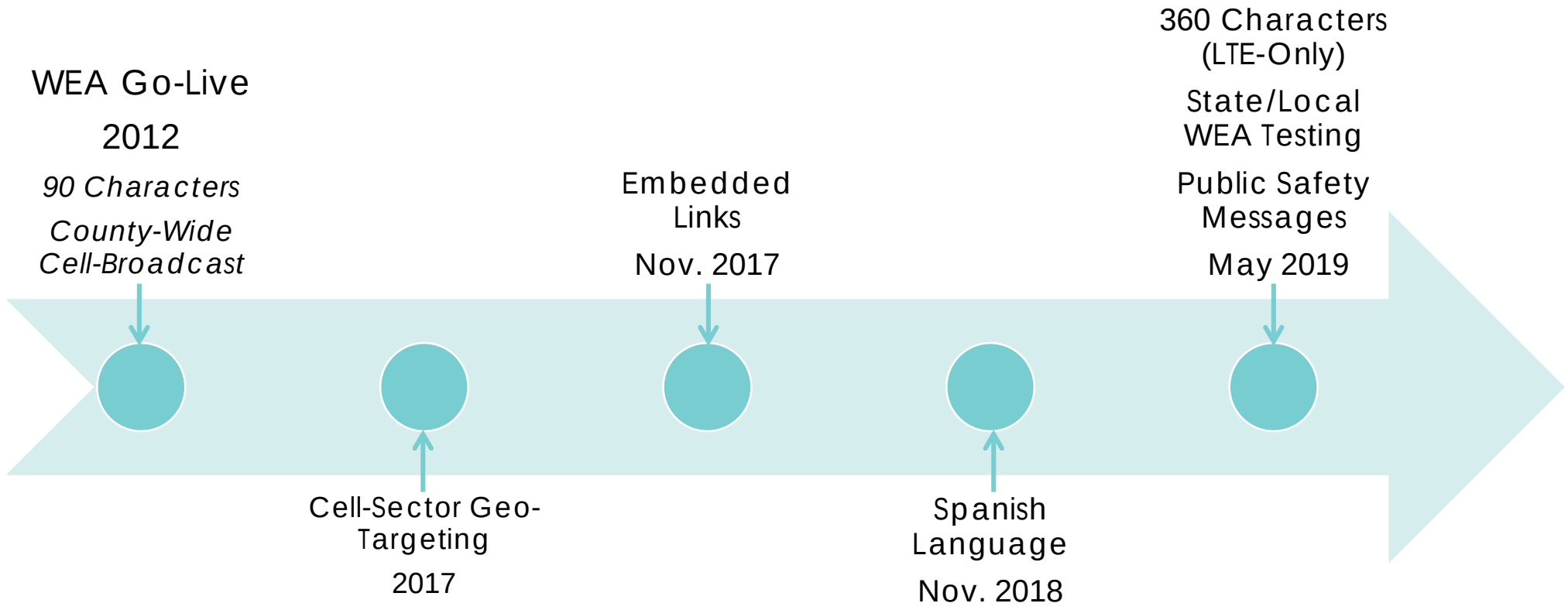
WEA Helps Public Safety Officials Save Lives

- WEA was created by the Warning, Alert, and Response Network (WARN) Act of 2006 and implemented by the FCC and FEMA in 2012
  - Wireless providers voluntarily send WEA **text messages with emergency information** from public safety officials (**99%** of subscribers are served by participating providers)
  - All consumers with **WEA-capable devices** receive WEA, unless the consumer chooses to opt out of imminent threat or AMBER alerts.
- WEA initiation, content, scope, and timing are all **controlled by alert originators**; wireless providers and FEMA serve only to transmit the message.
  - Alert Classes: Presidential, Imminent Threat, AMBER, and Public Safety (May 2019).
  - Unique audio attention signal and vibration cadence.
  - State/Local WEA Testing (May 2019)

WIRELESS EMERGENCY ALERTS CAPABLE

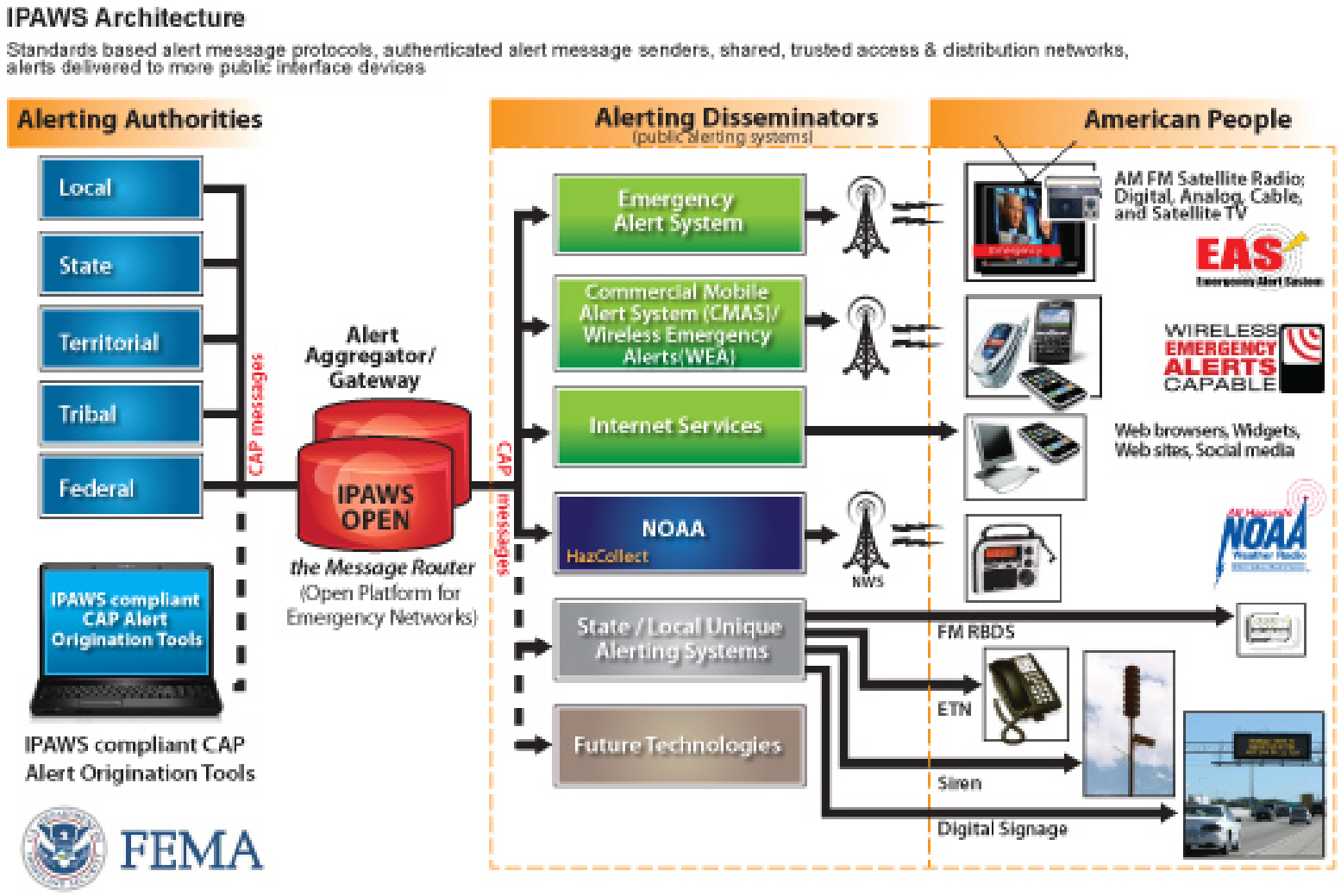
FCC WEA Enhancements Are Ongoing



Timeline is for illustrative purposes only. Does not include all enhancements.

WEA is a Tool for Public Safety Within the National Alert and Warning Toolbox

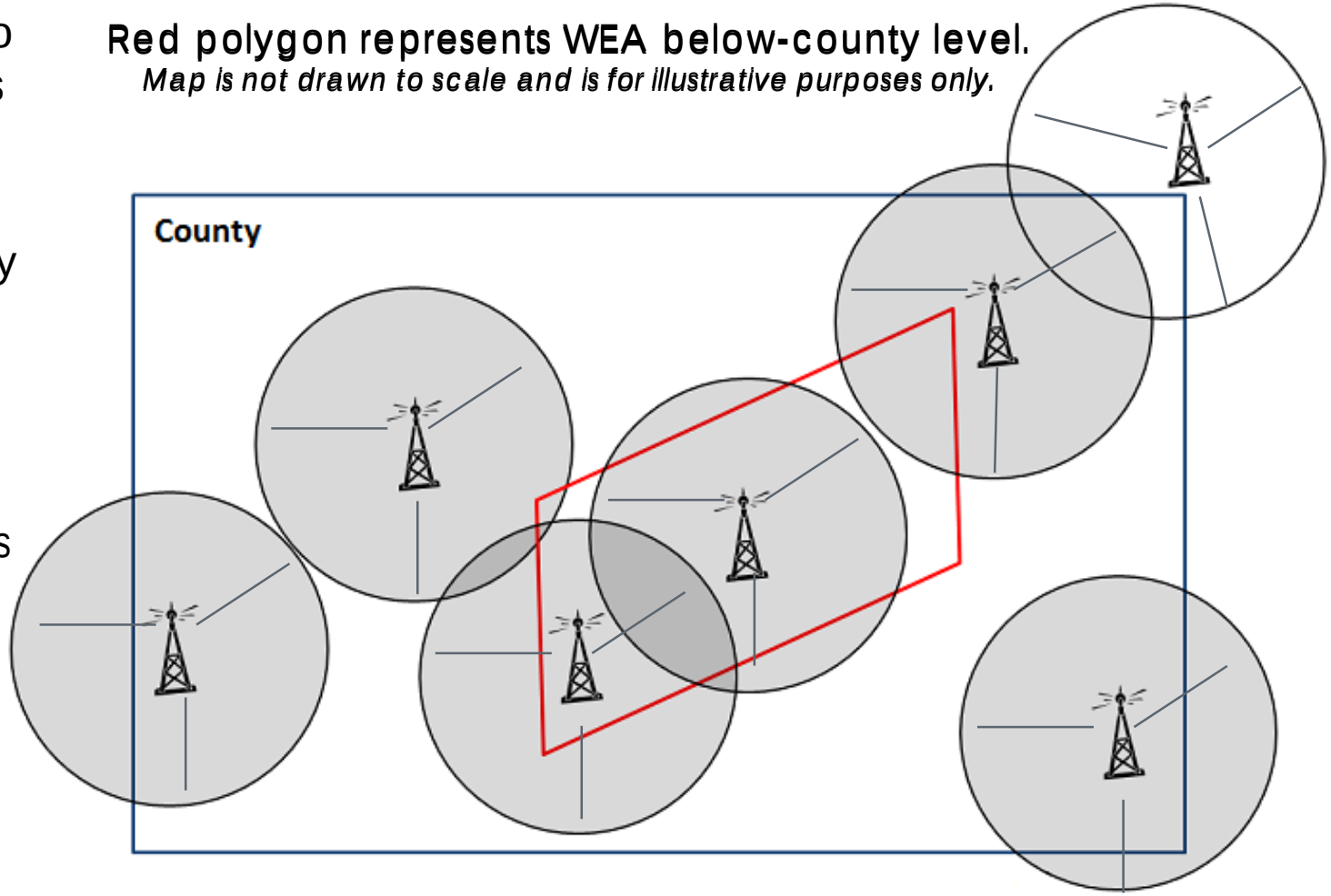
- Authorized federal, state or local government officials send WEA alerts to FEMA regarding public safety emergencies (imminent threats to life and/or property)
- FEMA's IPAWS authenticates the WEA alert, verifies that the sender is authorized, and sends it to participating wireless carriers via the alert gateway
- Participating wireless carriers broadcast the alerts from cell towers to WEA-enabled devices in the affected area



WEA is Based on Cell-Broadcast Technology

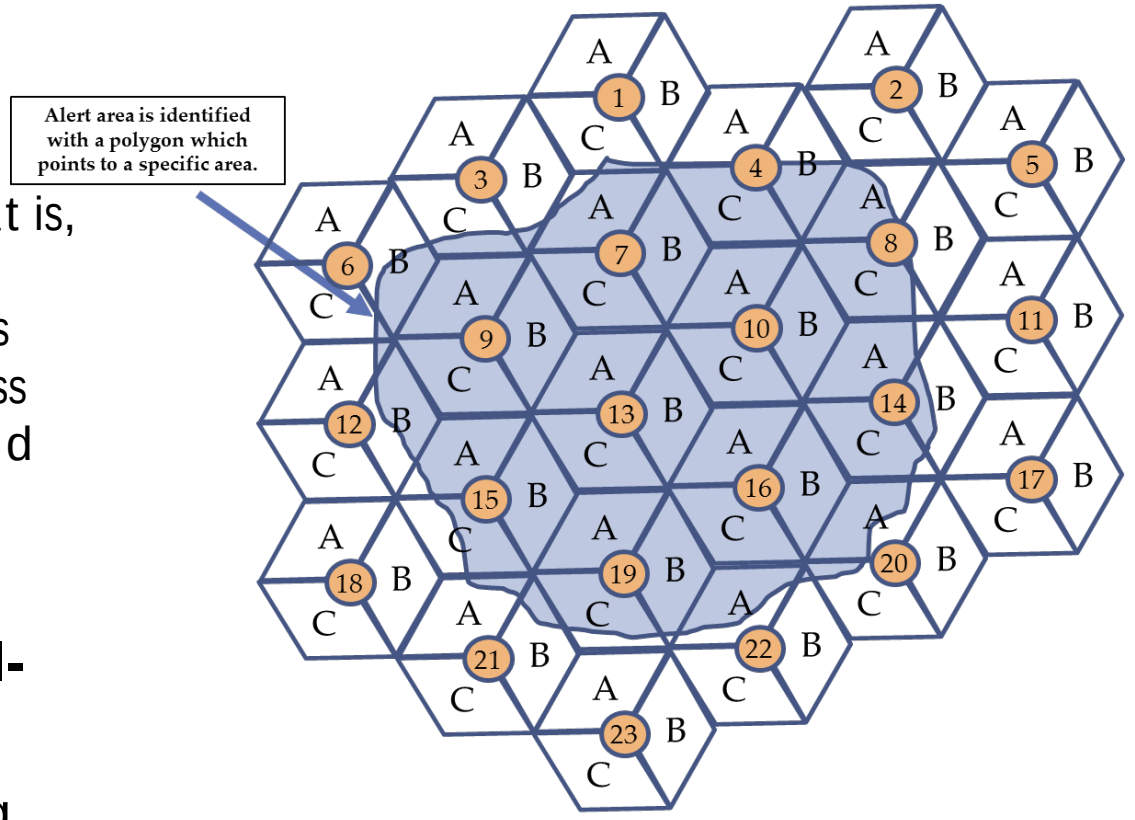
- Cell-Broadcast technology sends WEAs to **capable devices** and avoids traffic issues that may impact other communications.
- Participating wireless providers **best approximate** an alert area designated by local public safety officials (alert originators) through **cell-sector geo-targeting**.
- Cell-sector geo-targeting has enabled alert originators to successfully send WEAs to alert areas **below the county level** to meet the emergency situation.
- Cell-sector geo-targeting utilizes cell-broadcast technology that may result in **over or under-alerting** for more narrowly focused WEAs, depending on cell site topology

Red polygon represents WEA below-county level.
Map is not drawn to scale and is for illustrative purposes only.



Device-Based Geo-Targeting is a Fundamental Shift in WEA Technology

- Device-Based Geo-Targeting can further mitigate over-alerting by the mobile device **suppressing** WEAs received within a cell-sector when the device is **outside the alert area** if:
  - The **mobile device is aware of the alert area**; that is, the **alert area is broadcast along with the alert message** from an alert originator through FEMA's IPAWS Gateway through capable mobile wireless networks to capable mobile wireless devices; and
  - A mobile device is capable of estimating its location based on **settings and environment**.
- Device-based geo-targeting will still require **cell-broadcast** cell-sector geo-targeting.
- Implementation of device-based geo-targeting will require **new end-to-end standards and solutions**.



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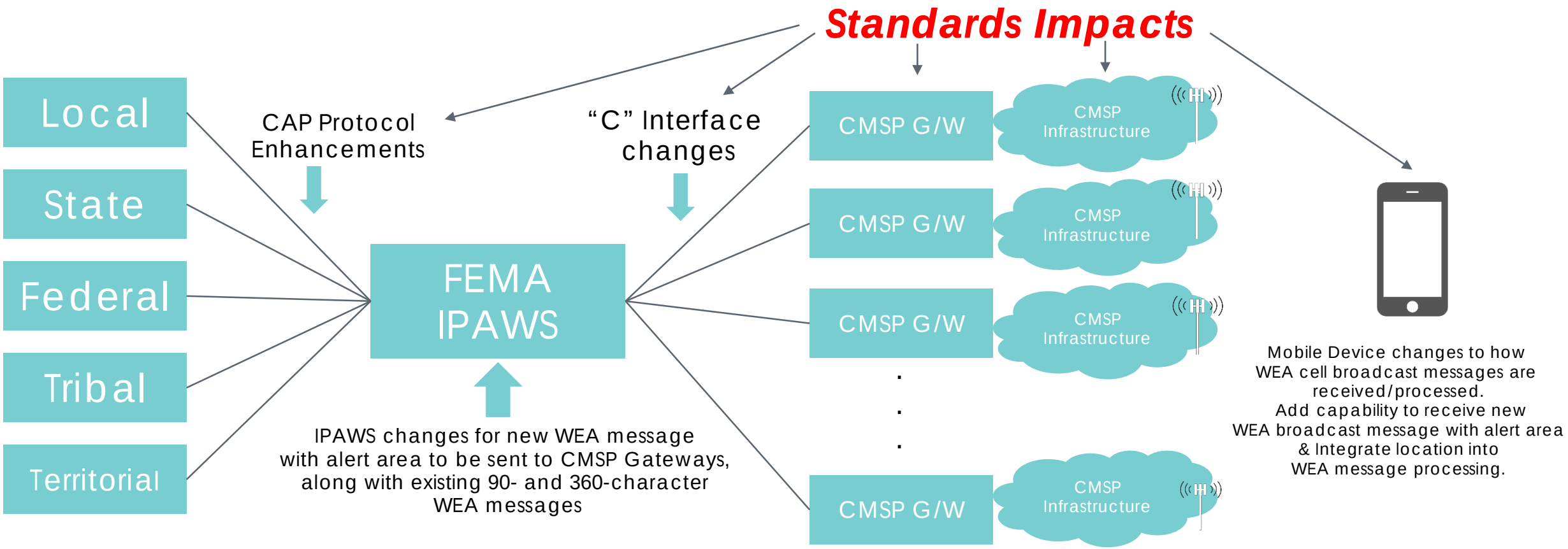
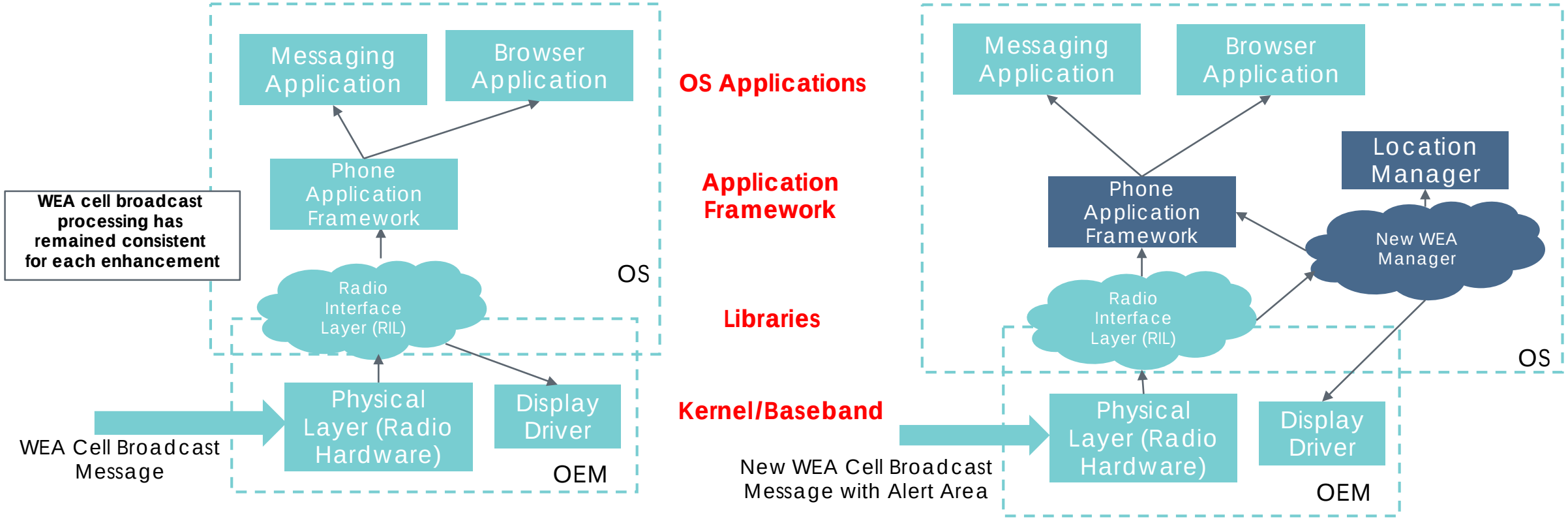
At Least 36 Months Is Necessary to Achieve Device-Based Geo-Targeting

- The **successful implementation of the WEA system** has benefited from the fact that the Commission **has balanced time for standards-based technology** to be developed, implemented, and tested with the urgency of the public safety mission.
- Implementation of a device-based geo-targeting capability for WEA **requires**:
  - New network and device standards (approx. 12-18 months);
  - New device development (approx. 12-18 months);
  - Integration of new interfaces into devices & software (approx. 12-18 months);
  - Updates to core networks (approx. 9-12 months);
  - Updates to FEMA IPAWS and alert originator technologies; and
  - End-to-end testing of new features (approx. 6 months).
- While some of these efforts may occur in parallel, this process **will require at least 36 months** from the effective date of new FCC rules.
  - FCC CSRIC V WG2 (Sept. 2016): ATIS estimates 42 – 66 Mos.
  - FCC WEA FNPRM (Sept. 2016): Proposes 42 Mos. from Order Publication or 24 Mos. from Standards

Standards Impact to Each Interface Within the WEA System to Support Device-Based Geo-Targeting



Fundamental Changes to Multiple Layers Within Devices Needed to Support Device-Based Geo-Targeting



A device configured to present a WEA cell broadcast message to the consumer does simply that – presents it – without any need to process or analyze the alert content, or change how the device functions as a result of that content

Device-based geo-targeting, however, fundamentally changes how the device processes the information broadcast in the alert, through processing capabilities that have traditionally depended upon upgrades to chipset capabilities, not merely through software.

Existing Device Capabilities Remain an Open Issue

- **Additional technical analysis** is needed among technical experts to **determine the ability of legacy or existing devices** to support device-based geo-targeting.
- ATIS is expected to complete a **feasibility study by June 30, 2018** to address whether legacy or existing device support is technically feasible and, if so:
  - When standardized methods could be available for new and existing handsets;
  - Whether such methods are incompatible with certain devices;
  - Impacts to networks for deployment of such solutions; and
  - Any actions FEMA and alert originators must take for consumers to use and benefit from such methods.
- CTIA recommends that the Commission instruct the Public Safety and Homeland Security Bureau **to seek expedited comment** on ATIS' findings.

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